

# New Hampshire Yankee

Ted C. Feigenbaum  
President and  
Chief Executive Officer

NYN-91062

April 17, 1991

United States Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Document Control Desk

- References:
- (a) Facility Operating License No. NPF-86, Docket No. 50-443
  - (b) PSNH letter SBN-979, dated March 31, 1986, "Electrical Separation Criteria", J. DeVincentis to V. S. Noonan
  - (c) PSNH letter SBN-1107, dated June 13, 1986, "Electrical Separation Criteria, Additional Information", J. DeVincentis to V. S. Noonan
  - (d) NHY letter NYN-90069, dated March 13, 1990, "Response to Allegation", T. C. Feigenbaum to the USNRC
  - (e) NUREG 0896, Supplement 5, "Safety Evaluation Report Related to the Operation of Seabrook Station, Units 1 and 2", dated July, 1986

Subject: Cable Megger Test Program

Gentlemen:

References (b) and (c) provided the results of a test program and analysis which supported the electrical cable and raceway separation criteria used at Seabrook Station. Reference (c) also specified the frequency for cable megger testing in response to a NRC request for additional information. The Reference (c) testing frequencies, as reiterated in Attachment 1 hereto, were based on the Seabrook Station Maintenance Program in effect in 1986. Based on the information provided in References (b) and (c), the NRC found Seabrook Station's revised electrical separation criteria acceptable as documented in section 8.3.3.3 and Appendix P of Reference (e). The intent of this cable megger testing was to detect any cable degradations which potentially could result in cable failures.

As part of our ongoing Maintenance Program initiative and to prepare for our first refueling outage, it has been determined that the frequency of the cable megger testing, as given in Attachment 1 should be revised to be consistent with the testing frequency of the connected load. That is, the megger testing will be performed as part of the connected load maintenance activity as outlined in Attachment 2. This change leads to a more systematic and coordinated approach and is commensurate with INPO Good Practice MA-316, "Plant Predictive Maintenance".

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The maintenance program as originally envisioned would require approximately 420 loads to be tagged out of service for various electrical maintenance tasks during each refueling outage. Approximately 140 (33%) of these tagouts are required for cable testing only, with no other maintenance required for these particular loads. New Hampshire Yankee (NHY) believes that such a large number of tagouts increases the probability of equipment unavailability during the outage. Any reduction in the number of unnecessary tagouts will enhance the maintenance program by making it more efficient. Additionally, radiological exposure would be reduced for the personnel involved in the tagouts as well as the testing.

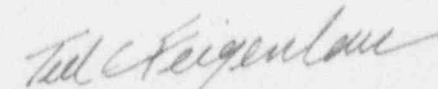
New Hampshire Yankee has previously provided megger testing information and Engineering Evaluation conclusions to the NRC [Reference (d)] which determined the megger testing program provided adequate assurance that the safety related cables are capable of performing their design function. Additionally the megger testing performed by NHY to date has shown all megger values to be above the acceptance criteria, and generally several thousand times higher. The revised megger testing program will continue to provide adequate assurance that cables are capable of performing their design function because the surveillance frequencies still are adequate to detect any potential cable degradation.

Additionally, NHY has reviewed industry standards related to the periodic megger testing of installed cables. The standards address acceptance testing of cables after initial installation, but do not provide criteria for periodic megger testing of cables. Cable manufacturers also do not provide recommendations relative to the periodic megger testing of installed cables. The predominant industry practice is to megger test the motor with the cables connected. NHY believes that the revised cable megger testing frequency which it has specified in Attachment 2, in combination with our ongoing evaluation of the resultant data, provides an adequate means for detecting cable degradation and provides adequate assurance that safety related cables are capable of performing their design function.

NHY considers this change as a positive enhancement which streamlines and simplifies our megger testing program. It is our intention to implement this program prior to our first refueling outage which is currently scheduled to begin on July 27, 1991. Therefore, NHY respectfully requests your review and concurrence with our enhanced megger testing program as described herein by June 1, 1991 to support the preparation for the refueling outage.

Should you have any questions concerning this matter, please contact Mr. James M. Peschel, Regulatory Compliance Manager, (603) 474-9521, extension 3772.

Very truly yours,

  
Ted C. Feigenbaum

Attachments

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United States Nuclear Regulatory Commission  
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ATTACHMENT 1 TO NYN-91062



## ATTACHMENT 1

### CURRENT GUIDELINES FOR MEGGER TESTING

#### MOTORS

- Feeder cables to all safety and non-safety related motors 50HP and larger are tested every refueling.
- Feeder cables to all safety related motors smaller than 50HP are tested every refueling.
- Feeder cables to non-safety related motors smaller than 50HP are tested every 5th refueling.

#### UNIT SUBSTATIONS

- Feeder cables to safety and non-safety related unit substations are tested every 3rd refueling.

#### MOTOR CONTROL CENTERS

- Feeder cables to safety related Motor Control Centers (MCC) are tested every 3rd refueling.
- Feeder cables to non-safety related Motor Control Centers are tested every 5th refueling.

#### MISCELLANEOUS

- Feeder cables to miscellaneous loads (except Motor Control Centers) fed from Unit Substations are tested at an interval not to exceed every 5th refueling.

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April 17, 1991

ATTACHMENT 2 TO NYN-91062

## ATTACHMENT 2

### PROPOSED GUIDELINES FOR MEGGER TESTING

#### MOTORS

- 4.16 KV and 13.8 KV safety and non-safety related motors and their feeder cables:  
Every other refuel or every 3 years
- 480 VAC safety related motors and their feeder cables:  
Every other refuel or every 3 years
- 480 VAC non-safety related motors > 50 HP and their feeder cables:  
Every other refuel or every 3 years
- 480 VAC non-safety related motors < 50 HP and their feeder cables:  
Every third refuel or every 5 years
- 125 VDC non safety related motors and their feeder cables:  
Every third refuel or every 5 years

#### MOTOR - OPERATED VALVES

- Safety related MOV's and their feeder cables:  
Every other refuel or every 3 years
- Non-safety related MOV's and their feeder cables:  
Every third refuel or every 5 years

#### UNIT SUBSTATIONS

- Feeder cables to safety and non-safety related unit substations:  
Every third refuel or every 5 years

## ATTACHMENT 2

### PROPOSED GUIDELINES FOR MEGGER TESTING (Cont.)

#### MOTOR CONTROL CENTERS

- Feeder cables to safety related and non-safety related MCC:

Every third refuel or every 5 years

#### MISCELLANEOUS

- Feeder cables to non-safety and safety related miscellaneous loads fed from unit substations (480 VAC), motor control centers (480 VAC) and dc switchgear (125 VDC):

Every third refuel or every 5 years